

LISTING OF THE CLAIMS

Applicant requests amendment to the claims as specified in the following listing of claims. If accepted, this listing of claims will replace all prior versions, and listings, of claims in the present application. Additions are identified by underlining. Deletions are indicated by ~~striketrough~~ or [brackets].

1. (Currently Amended) A method for estimating end-to-end quality of service parameters for an Internet Protocol ("IP") communications network, wherein the end-to-end quality of service parameters are selected from end-to-end packet loss, end-to-end packet delay and end-to-end packet delay jitter, and wherein the IP communications network includes routers connected by links and gateways to a Public Switched Telephone Network ("PSTN"), the method using estimates of offered traffic for each service from each source carried to each gateway of the IP communications network, comprising the steps of:
 - estimating, from the offered traffic to each gateway, blocked traffic and carried traffic at each gateway;
 - estimating a load carried for each network link using a network routing algorithm and based on the carried traffic;
 - calculating a loss probability for each network link using the load carried for the network link and a varying [a] number of active sources; and
 - estimating an end-to-end packet loss probability by using the loss probabilities of each network link.
2. (Currently amended) The method of claim 1, wherein the loss probabilities are calculated over all possible numbers of active sources, and wherein the step of estimating an end-to-end packet loss probability sums the ~~plurality~~ of loss probabilities over all possible numbers of active sources.
3. (Previously Presented) The method of claim 1, further comprising: estimating a packet delay for each network link after estimating the load carried for each network link.

4. (Previously Presented) The method of claim 3, further comprising estimating an end-to-end packet delay using the packet delays for each network link.
5. (Previously Presented) The method of claim 1, further comprising estimating an end-to-end packet delay jitter.
6. (Previously Presented) The method of claim 1, wherein the offered traffic for each service has deterministic and non-deterministic attributes for packet length and inter-arrival distribution.
7. (Previously Presented) The method of claim 1, wherein a Kaufman algorithm is used in estimating blocked traffic and carried traffic.
8. (Cancelled)
9. (Previously Presented) The method of claim 1, wherein the estimates of loads carried for each network link are in Erlangs.
10. (Previously Presented) A method for estimating end-to-end quality of service parameters for an Internet Protocol ("IP") communications network, wherein the end-to-end quality of service parameters are selected from end-to-end packet loss, end-to-end packet delay and end-to-end packet delay jitter, and wherein the IP communications network includes routers connected by links and gateways to a Public Switched Telephone Network ("PSTN"), the method using estimates of offered traffic having deterministic and non-deterministic attributes for packet length and inter-arrival distribution for each service from each of a varying number of active sources carried to each gateway of the IP communications network, comprising the steps of:
 - estimating, from the offered traffic to each gateway, a blocked traffic and a carried traffic from each gateway;
 - estimating a load carried for each network link using a network routing algorithm;
 - calculating a loss probability for each network link by using the estimated load carried for the network link and a varying number of active sources ;

estimating an end-to-end packet loss probability by using the loss probabilities for each network link;

estimating a packet delay for each link based on the loss probability of the network link;

estimating an end-to-end packet delay based on the packet delays for each link; and

estimating an end-to-end packet delay jitter based on the end-to-end packet delay.

11. (Previously Presented) The method of claim 10, wherein the loss probabilities for each network link are calculated over all possible numbers of active sources, and wherein the step of estimating an end-to-end packet loss probability sums the loss probabilities for each network link over all possible numbers of active sources.

12. (Currently Amended) A method for estimating end-to-end quality of service parameters for an Internet Protocol ("IP") communications network, wherein the end-to-end quality of service parameters are selected from end-to-end packet loss, end-to-end packet delay and end-to-end packet delay jitter, and wherein the IP communications network includes routers connected by links and gateways to a Public Switched Telephone Network ("PSTN"), the method using estimates of offered traffic for each service from each source carried to each gateway of the IP communications network, comprising the steps of:

determining a possible number N of sources, where N is an integer greater than one;

estimating, from the offered traffic to each gateway, a blocked traffic and a carried traffic from each gateway;

estimating a load carried for each network link using a network routing algorithm;

calculating at least one quality of service parameter for each network link using the estimated load carried for the network link and by varying the number N for each calculation;

and

estimating at least one end-to-end quality of service parameter by summing the quality of service parameters for the network links.

13. (Previously Presented) The method of claim 12, wherein the at least one quality of service parameter for the network link is selected from the group consisting of single link packet loss probability and single link packet delay distribution.

14. (Previously Presented) The method of claim 12, wherein the at least one end-to-end quality of service parameter is selected from the group consisting of end-to-end packet loss probability, end-to-end packet delay distribution, and end-to-end packet delay jitter.
15. (Previously Presented) The method of claim 14, wherein the quality of service parameter for the network link is selected from the group consisting of single link packet loss probability and single link packet delay distribution.
16. (Original) The method of claim 12, wherein the estimates of offered traffic are in Erlangs.
17. (Previously Presented) A system for estimating end-to-end quality of service parameters for an Internet Protocol ("IP") communications network, wherein the end-to-end quality of service parameters are selected from end-to-end packet loss, end-to-end packet delay and end-to-end packet delay jitter, and wherein the IP communications network includes routers connected by links and gateways to a Public Switched Telephone Network ("PSTN"), the system carrying traffic for one or more service types from one or more sources, comprising:
- a database comprising parameters for each gateway, the parameters identifying type of service and characteristics of each service;
 - a memory comprising an end-to-end quality of service program; and
 - a processor utilizing the end-to-end quality of service program to
 - estimate, from offered traffic to each gateway, a carried traffic at each gateway;
 - estimate a load carried for each network link using a network routing algorithm and based on the carried traffic at each gateway;
 - calculate a loss probability for each network link by using the corresponding load carried for the network link and a varying number of active sources; and
 - estimate an end-to-end packet loss probability by using the loss probabilities of each network link.
- 18.- 21. (Cancelled)